SEE.SENSE®
RIDE INSIGHTS

Megabits Presentation
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See.Sense

ABOUT SEE.SENSE

Our mission:

To **make cycling and micromobility better** - by making it **safer**, and collectively **smarter**.

- Northern Ireland -based, multi-award winning SME
- Our products are now used by over 120,000 cyclists worldwide and we work with leading smart cities globally.
- Applying **patented sensor and AI-fusion technology**, See.Sense is specialised in products and data for cycling and micromobility market

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See.Sense data is very valuable for cycling policies and can help to prioritise the creation and improvement of cycling paths/unsafe situations.

The results point to priorities for **creating or improving cycling paths** (popular routes), to **potentially unsafe situations for cyclists** (info on speed, braking, road surface) and to the **need for storing facilities** at certain locations (dwell time).

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BITS Overview Report

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OUR TECHNOLOGY: AI-ENABLED SENSORS FOR MICROMOBILITY

- See.Sense technology effectively **turns a bike or an e-scooter into a sensor,** generating never before insights into the rider's experience

- Our patented technology **monitors the rider's environment 800 times per second**, using edge processing and Ai to providing highly granular data

- Technology can be deployed to specific groups, ensuring data is sourced from the **targeted demographic or location**

- **Engages citizens** in data collection using our tried and tested project deployment playbook

- Best in class **data privacy** expertise honed by working on numerous local authority projects

- Providing easy to use **data dashboards**, analysis and reporting to support data led decision making

· SWERVING
· BRAKING
· COLLISIONS
· ROAD SURFACE
· SPEED
· DWELL TIME

"It really is a **game change**r"

Essex County Council

OUR SMART TECH ADVANTAGE

Monitoring its environment **800** times per second

See.Sense technology uses advanced, patented sensor technology, along with edge processing and AI, to create situational awareness. This provides full bike telemetry, and granular sensor that provide never before seen insights into the rider's experience.
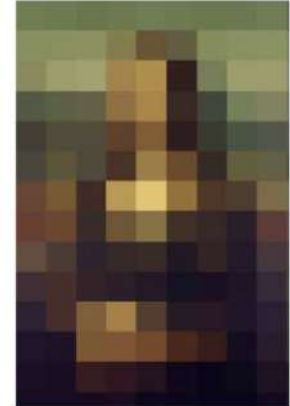

Our patented technology monitors the rider's environment 800 times per second, providing unparalleled insight that is not possible from using an app alone.

ADVANCED DATA FROM MICROMOBILITY FLEETS

The See.Sense patented sensor IoT device seamlessly integrates into bike fleets, both e-bike and pedal bikes (that have a 5v dynamo charge), along with e-scooters, sending data over low power wide area networks. Data is sent straight to the cloud with no user intervention required.
A hardware free option is also available for compatible e-scooters by embedding our smart algorithm into your existing firmware.

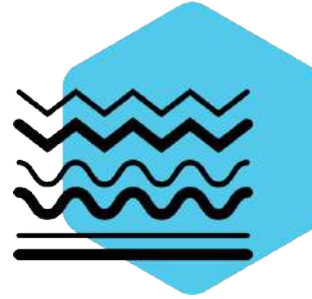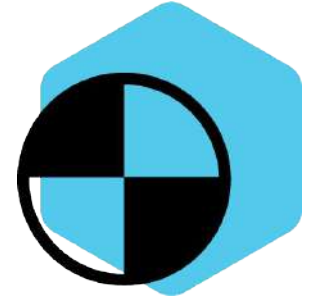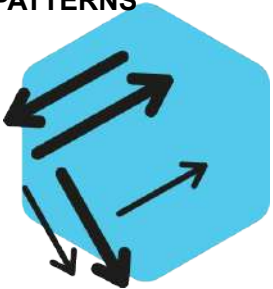# PROVIDING A STANDARDISED DATA SET WITH SAFETY AT ITS CORE

SWERVING
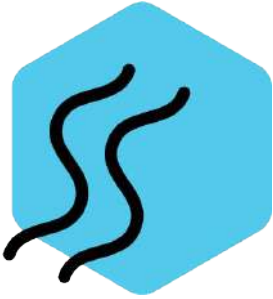
BRAKING
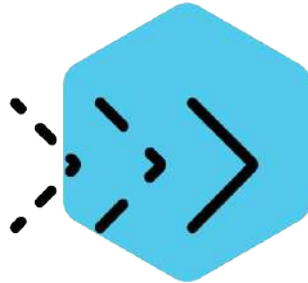
ROAD ROUGHNESS
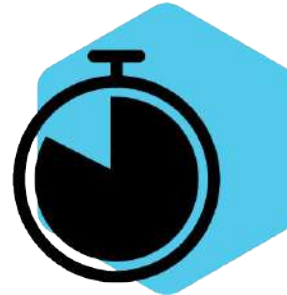
COLLISIONS

MOVEMENT PATTERNS

SPEED

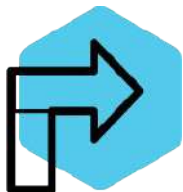**DWELL TIMES**

CYCLIST SURVEY REPORTS*

*only available via App

SEE.SENSE SMART BIKE LIGHTS

See.Sense lights are used by **over 120,000** cyclists around the world.

Our dedicated sensor technology detects riskier moments on the road, helping keep cyclists visible by flashing brighter and faster.
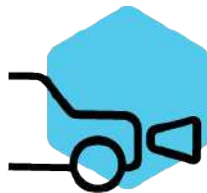
Road Junctions

Roundabouts

Filtering in Traffic

Car Headlights

BEST BUY
INDY/BEST
INDEPENDENT

"The Independent Indy 'Best Buy' for Bike Lights"

OUR FREE APP PROVIDES A CONNECTED RIDING EXPERIENCE

ENHANCEMENTS TO THE HARDWARE

- ICE Crash detection alerts
- Theft detection alerts
- Low battery notifications and changes to light settings

ENGAGING PERSONAL RIDE STATS

- In-app reports on distance ridden, average speed, calories burned, fuel saved and CO2 saved
- Monthly 'Vision' email providing an overview of riding activity across the month

COMMUNITY

- Make 'See.Sense Reports' by dropping a in the map to report issues such as a close pass or to request a bike lane

SURVEY DATA TO UNDERSTAND PERCEPTION, EXPERIENCE & REQUESTS

Using our app, riders can drop a pin in a map to make the following reports, providing a wealth of qualitative perception data to compliment our sensor data:
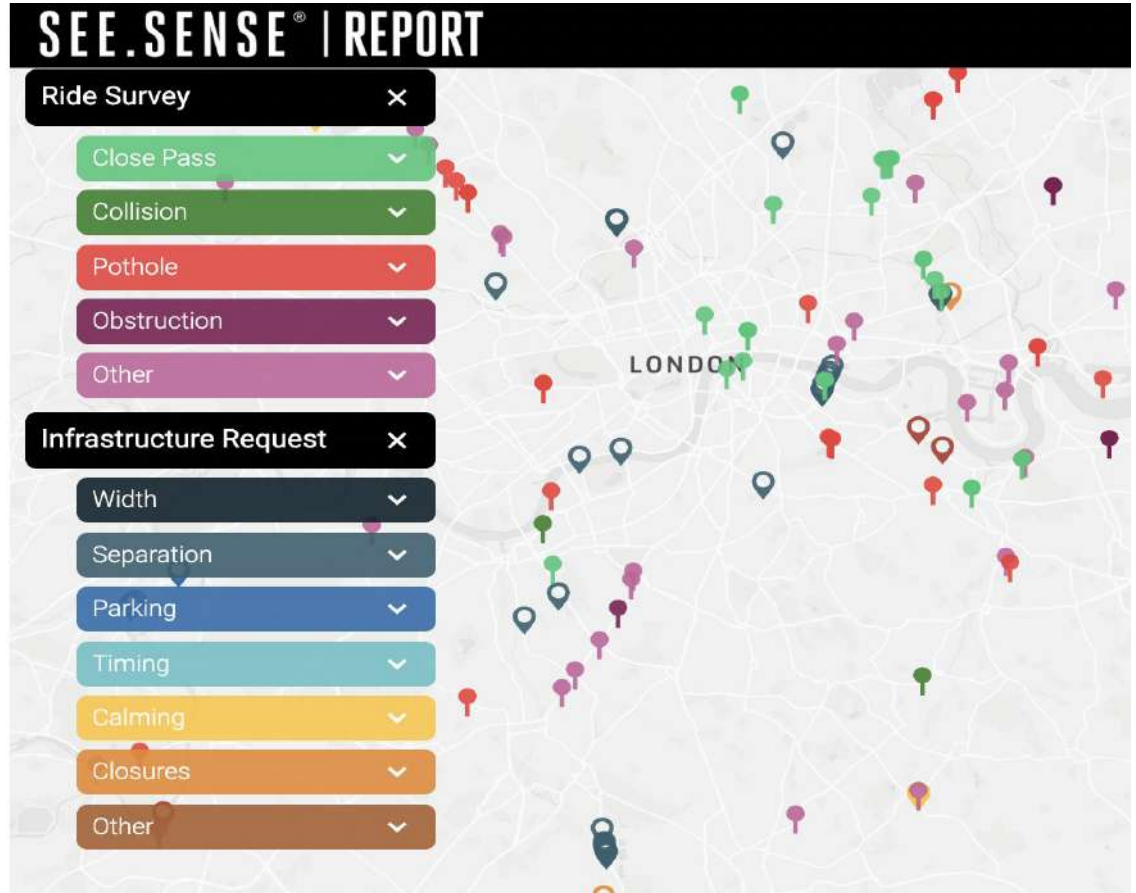
RIDE SURVEYS
- Close passes
- Collisons
- Potholes
- Obstructions
- Other
Plus add 250 character descriptions to accompany each report.

INFRASTRUCTURE REQUESTS
- Add more width.
- Add separation from motor traffic.
- Add cycle parking.
- Change timing of traffic lights.
- Slow down traffic.
- Other.

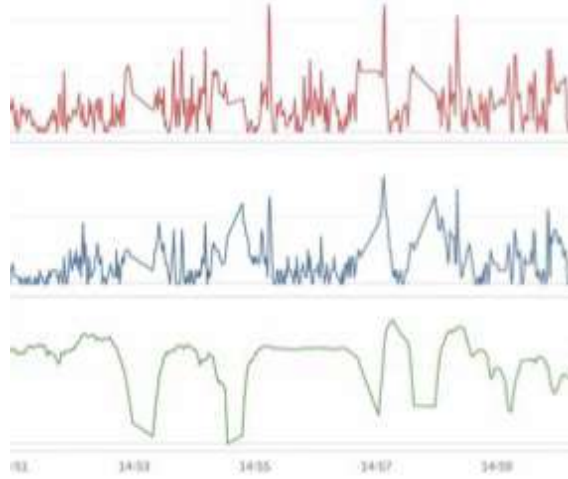Plus add 250 character descriptions to accompany each report.

KEY DIFFERENTIATORS

SEGMENTATION
- Obtain representative data (eg. women, commuters etc) by deploying devices to a targeted audience

GRANULAR SENSOR DATA INSIGHTS
- It's not just where people go, but using patented sensor technology we create a deep understanding of their experience

CITIZEN ENGAGEMENT
- Our projects create a mobile focus group, allowing engagement with cyclists and the wider community.

SEE.SENSE DATA FILLS IMPORTANT GAPS LEFT BY OTHER DATA SOURCES

SINGLE BICYCLE CRASHES

Single cyclist collisions (29%) are least likely to be reported to police.
Only 15% occur at junctions. Most common causes are Infrastructure related - slips, road condition, Road user related, Bicycle malfunction

BIKE & PEDESTRIAN CONFLICTS

High swerving and braking levels identify locations where conflict is occuring.

BIKE IDENTIFICATION

Known data sources from a bike (not estimated)
Detect difference between bike and e-cargo bike
Other data disaggregation eg. gender

WE SPAN THREE AREAS OF FOCUS

JOURNEY PLANNING & INFRASTRUCTURE

- Identifies safety hotspot areas, and condition of roads for asset mgmt
- Audits, and monitoring and evaluate impact of infrastructure

ON-BIKE TECHNOLOGIES

AI-enabled GPS Sensor Tracker - 'SUMMIT'
Connected & Intelligent bike lights

- Any bike! Regular bike with dynamo, e-bike, e-cargo bikes.
- Near-real time data feed for dynamic interaction with B2I (Bike to Infrastructure)

DATA MANAGEMENT & ANALYSIS

- Data dashboards for monitoring fleet data, and generating insights, with downloadable reports analysis
- API for near-real time feed for traffic management systems

DATA FOR SAFETY ANALYSIS AND VISION ZERO


HIGHLIGHT ROAD SAFETY HOTSPOTS
Analyse swerving and braking data with collision records to identify and understand were cyclists are experiencing hazards in order to prioritise site visits to establish ground truth and what can be improved at these locations.

INFORM RISK MODELS
Model the 'big picture', along with data from other modes, in order to understand where safety interventions can be most effective.
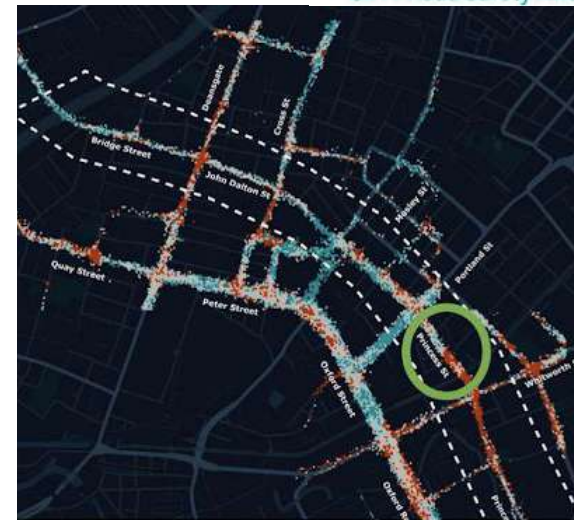
CONDUCT CORRIDOR ANALYSIS
Gather vital data to help analyse conflict areas on junctions or other specific locations with granular data insights.

Collisions CASE STUDY: RoSPA in Birmingham

- Cyclists were 2.4 times more likely to brake heavily or swerve in the immediate area around a reported cycle incident.

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See.Sense can help identify the most hazardous cycling areas or to analyse an area based on reports from cyclists.
"

ROSPA

Mapping of swerving and braking incidents and reported cycle collisions.

CASE STUDY: SMART DUBLIN

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The project results showed which road surfaces were particularly challenging for cyclists. The information gathered from the project was used to inform the development of Dublin City's most recent cycle infrastructure improvements"
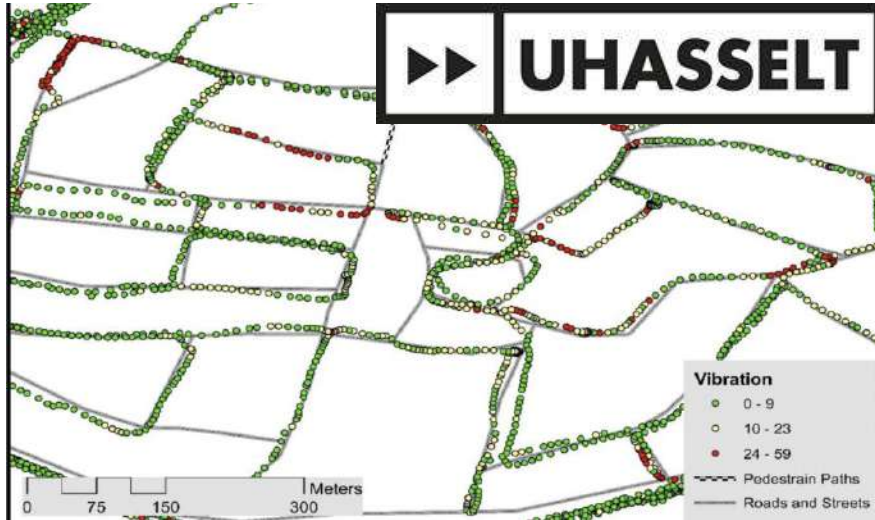
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Smart Dublin

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A useful tool for planners to develop cycle networks and also identify maintenance priorities"

"

Paper: "Using Big Data to Establish a Quality of Service provided by Cycle Infrastructure" European Transport Conference, 2019.

Joe Seymour, AECOM

VALIDATION FROM LEADING RESEARCHERS AND PUBLICATIONS

" The ability of See.Sense to monitor and revisit specific lengths of infrastructure at a considerably higher frequency may provide a far fuller picture of surface deterioration, allowing for a preventative maintenance strategy based on accurate and up-to-date data "

University of Hasselt, Belgium

" Traditionally, the Council is dependent on physical observation and reporting from citizens to identify poor road conditions. The project transformed the quality and coverage of information available to the Council. "

International Transport Forum

WHO WE WORK WITH

AWARDS

Finalist with our partner RoSPA, 2021

Finalist, 2021

TRANSTech Award Safety & Security Category 2019

Winner of Safety Category in the Highways UK Intelligent Infrastructure Challenge 2018

Digital DNA Awards, Best Small Tech Company 2018

Winner Digital Catapult Platinum Award 2019

The Spectator Economic Disruptor Award 2018 Regional Winner (Scotland & NI)

Finalist, Best IoT Project of the Year, 2018

BT Infinity Lab SME Award 2016: Connected Cities, May 2016

THANK YOU

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